

CLAIMS

1. A method for retrieving and accessing data stored in a plurality of systems arranged for operating part of one or more electrical power networks which method comprises adding a new object into a first system, **characterised** by subsequently adding a copy of the new object into a plurality of relevant systems, establishing automatically a connection between said relevant systems and the new object, and replicating data related to the new object to other systems and relevant systems.

2. A method according to claim 1, **characterised** by maintaining object connections (links) for the new object and for any other object accessed, retrieved and/or stored by a SCADA system as well as by any system from the list of: GIS system, ERP system, CMMS system, PM system, WO system, WMS system.

3. A method according to claim 2, **characterised** by establishing the consistency of accessed or retrieved data in the relevant systems by means of mapping the new object using a model based on a structured text document.

4. A method according to claim 3, **characterised** by checking the consistency of attributes of the accessed or retrieved data by identifying the new or a given object and/or copies of the new or a given object and comparing attributes of all copies of the same new or given object.

5. A method according to claim 4, **characterised** by mapping the new object and/or copies of the new object using a model based on a CIM/XML document.

6. A method according to claim 4, **characterised** by mapping attributes of the new object and/or copies of the new object using a model based on a CIM/XML document.

7. A method according to claim 1, **characterised** by establishing the automatic connection or connections between copies of the same object in different systems means of a CIM/XML layer (1).

5 8. A method according to claim 1, **characterised** by mapping the new object by means of a virtual asset register (10) dependent on the CIM/XML layer (1) and/or mapping.

9. A method according to claim 1, **characterised** by selecting an
10 object by means of an identifier in any said relevant system.

10. A method according to claim 9, **characterised** in that the identifier may be a URI (Uniform Resource Identifier) compatible as an identifier with a standard for RDF (Resource Description
15 Framework).

11. A method according to claim 6, **characterised** by accessing one or more object attributes of the new object and changing an object attribute of the new object in a source system (owner,
20 the first system).

12. A method according to claim 6, **characterised** by updating an object attribute of the new object in the source system (owner, the first system).
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13. A method according to claim 1, **characterised** by creating the new object in each relevant system based on object templates.

14. A method according to claim 1, **characterised** by deleting an
30 object by deleting the object in all relevant systems.

15. A method according to claim 14, **characterised** by deleting an object by deleting a defined object in each system.

16. A method according to claim 15, **characterised** by deleting an object by deleting object connections (links) to a deleted object or deleted defined object.

5 17. A computer program for retrieving and accessing data stored in a plurality of systems arranged for operating part of one or more electrical power networks comprising software code portions or computer code to cause a computer or processor to carry out the steps of a method according any of claims 1-16.

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18. A computer program product recorded on a computer readable medium which when read into a computer or processor will cause the computer or processor to carry out a method according to any of the steps of claims 1-16.

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19. An asset register for retrieving and accessing data stored in a plurality of systems arranged for operating part of one or more electrical power networks, **characterised** in that said asset register comprises a list of power network assets which list
20 comprises in turn cross reference and mapping data for objects represented and/or stored in a SCADA system as well as in any system from the list of: GIS system, ERP system, CMMS system.

20. An asset register according to claim 19, **characterised** by a
25 comprising a list of references for all objects representing individual items of physical and/or logical equipment comprised in the one or more parts of the said power network.

21. An asset register according to claim 20, **characterised** in
30 that the list comprises a master list of all objects in the one or more parts of the said power network together with the mapping data for each object according to a CIM model.

22. An asset register according to claim 21, **characterised** in
35 that object data for the objects comprised in the master list of

the asset register is stored in at least one separate system including any of a system for: SCADA, GIS, CMMS, ERP, PM, WO.

23. An asset register according to claim 21, **characterised** in that the asset register is a virtual asset register which does not comprise any object data for the objects comprised in the master list and comprises only link information or cross reference data or mapping data.

24. A human-machine interface for retrieving and accessing data stored in a plurality of systems arranged for operating part of one or more electrical power networks, which HMI comprises a display including data accessed or retrieved from or stored in a SCADA system, **characterised** by also comprising data accessed or retrieved from or stored in any from the list of: GIS system, ERP system, CMMS system, PM system, WO system.

25. A human-machine interface according to claim 24, **characterised** by at least one graphical user interface with means for manipulation of the data retrieved from or stored in the SCADA and any of the systems for GIS and/or ERP and/or CMMS.

26. A human-machine interface according to claim 24, **characterised** by reading out any object property independent of source.

27. A human-machine interface according to claims 24-26, **characterised** by means to provide access to simultaneous data stored in or held by any of the list of: SCADA system, GIS system, ERP system, CMMS system, PM system, WO system.

28. A computer-based system for retrieving and accessing data stored in a plurality of systems arranged for operating part of one or more electrical power networks, **characterised** in that said computer-based system comprises a plurality of databases and a data communication network and which system includes an

HMI providing navigation and access to at least one SCADA system and/or database as well as to any system and/or database from the list of: ERP, GIS, CMMS, WO, WMS, PM.

- 5 29. A computer-based system according to claim 28, **characterised**
by comprising one or members for: adding a new object;
automatically establishing a connection between said relevant
systems and the new object; and for replicating data related to
the new object to other systems and relevant systems.
- 10 30. A computer-based system according to claim 29, **characterised**
by comprising one or members for: maintaining object
connections; providing connection or connections by means of a
layer with a structured text document protocol; and mapping the
15 new object by means of a structured text document model.
31. A computer-based system according to claim 30, **characterised**
in that any of: the structured text document protocol layer, or
the structured text document means for mapping the new object
20 are implemented with a CIM/XML model.
32. A computer-based system according to claim 28, **characterised**
by comprising one or members for checking the consistency of
attributes of any data so accessed or retrieved data by
25 identifying the or each new or given object and/or copies of the
new or given object in any separate system, and comparing
attributes of all such copies of the same new or given object
from each of the separate systems.
- 30 33. A computer-based system according to claim 28, **characterised**
by a virtual asset register.
34. A computer-based system according to claim 28, **characterised**
by a virtual asset register implemented according to an XML or
35 CIM model or document.

35. A computer-based system according to claim 28, **characterised**
by an HMI that may comprise object data accessed or retrieved or
stored in a SCADA system and/or database as well object data
originating in any system and/or database from the list of:
5 ERP, GIS, CMMS, WO, PM.